Output tables for 1xN statistical comparisons.

December 17, 2022

1 Average rankings of Friedman test

Average ranks obtained by each method in the Friedman test.

Algorithm	Ranking
MEABC	6.5172
ABCADE	3.6207
ABCNG	5.2069
SHADE	2.7241
MAPSO	3.9655
TAPSO	4.2069
MEEABC	1.7586

Table 1: Average Rankings of the algorithms (Friedman)

Friedman statistic (distributed according to chi-square with 6 degrees of freedom): 90.931034.
P-value computed by Friedman Test: 0.

2 Post hoc comparison (Friedman)

P-values obtained in by applying post hoc methods over the results of Friedman procedure.

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm	Hochberg	Hommel	Holland	Rom
6	MEABC	8.388063	0	0.008333			0.008512	0.008764
5	ABCNG	6.078307	0	0.01			0.010206	0.010515
4	TAPSO	4.315598	0.000016	0.0125			0.012741	0.013109
3	MAPSO	3.890116	0.0001	0.016667			0.016952	0.016667
2	ABCADE	3.282286	0.00103	0.025			0.025321	0.025
1	SHADE	1.701926	0.088769	0.05			0.05	0.05

Table 2: Post Hoc comparison Table for $\alpha = 0.05$ (FRIEDMAN)

Bonferroni-Dunn's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.008333.
Holm's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.05.
Hochberg's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.025.
Hommel's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.05.
Holland's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.05.
Rom's procedure rejects those hypotheses that have an unadjusted p-value ≤ 0.025.

3 Adjusted P-Values (Friedman)

Adjusted P-values obtained through the application of the post hoc methods (Friedman).

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	$p_{Hochberg}$	p_{Hommel}
1	MEABC	0	0	0	0	0
2	ABCNG	0	0	0	0	0
3	TAPSO	0.000016	0.000096	0.000064	0.000064	0.000064
4	MAPSO	0.0001	0.000601	0.000301	0.000301	0.000301
5	ABCADE	0.00103	0.006178	0.002059	0.002059	0.002059
6	SHADE	0.088769	0.532616	0.088769	0.088769	0.088769

Table 3: Adjusted p-values (FRIEDMAN) (I)

i	algorithm	unadjusted p	$p_{Holland}$	p_{Rom}
1	MEABC	0	0	0
2	ABCNG	0	0	0
3	TAPSO	0.000016	0.000064	0.000061
4	MAPSO	0.0001	0.000301	0.000301
5	ABCADE	0.00103	0.002058	0.002059
6	SHADE	0.088769	0.088769	0.088769

Table 4: Adjusted p-values (FRIEDMAN) (II)